

Conference Abstract

Botanical Cross-Border Connections Unveiled Through Linked Data

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Received: 10 Dec 2025 | Published: 16 Dec 2025

Citation: Micai G, Hille A, Rainer H (2025) Botanical Cross-Border Connections Unveiled Through Linked Data. Biodiversity Information Science and Standards 9: e182085. <https://doi.org/10.3897/biss.9.182085>

Abstract

Eduard Hackel (1850–1926) was an Austrian botanist best known for his pioneering work on grasses (Poaceae), becoming one of the most famous and respected agrostologists of his time.

In 2024, the botanical department of the Natural History Museum of Vienna received as a donation a collection of more than 700 letters sent to Eduard Hackel between 1870 and 1932 by botanists writing from 40 different countries, in 6 different languages.

In botany, supplementary materials, such as the personal correspondence of scientists, field notes or diaries, hold a great potential, since they might contain the only documentation of a scientist's thought processes, ideas and observations, filling in gaps on missing or poorly documented specimens and ideas. They may record information that is otherwise hard to deduce from the specimens alone, which can be vital for scientific research (Rinaldo et al. 2013). In order to make the information contained in these types of materials findable and searchable by anyone and from anywhere, it needs to be digitised and transcribed. Transcription projects are time consuming, intellectually intensive, and expensive for an organisation to set up and manage. Crowdsourcing is a sustainable strategy for transcribing large collections and enhancing descriptive metadata. Despite the increasingly prominent role of artificial intelligence, crowdsourcing is still an indispensable part of the future of libraries, museums, and archives because it solves problems, strengthens the sense of community between the users and the public, adds value to the collection, and creates engagement.

The value of scientists' private correspondence as an historical source has been recognised for a long time already, but recently the concept of "correspondence networks," which connect several people into webs of exchange, became distinct objects of historical studies themselves. (Ogilvie 2016).

The transcription process started with the use of the AI-powered platform [Transkribus](#), which enables the transcription of handwritten text into machine-readable and searchable texts.

The challenges we faced in the transcription are intrinsic to the nature of our project: dealing with old, obsolete hand-written scripts (e.g., old Kurrent in German); letters written by different senders; and letters including different languages.

In order to overcome these challenges, we had to use different transcription models for the AI-driven transcription, and rely on various volunteers with different linguistic backgrounds and skills.

After the transcription, the letters were uploaded to [Goobi Workflow](#), which is a tool for the management and display odigitisation projects.

Transcribing the letters made it possible to extract relevant data from the texts about botanical specimens and their collectors and allowed the linkage of biographical data on [Wikidata](#) and [Bionomia](#) with specimen data on [JACQ](#) and [GBIF](#) (Global Biodiversity Information Facility).

With the use of Transkribus and the help of our volunteers, we were able to transcribe 864 pages and identify 140 senders. Each one of the botanists was linked to their [Q-number](#), which allows the linkage to their biographical data on Wikidata and Bionomia. In various letters, the sender included a botanical specimen and requested help from E. Hackel for its identification. In various cases, thanks to the information contained in the text, we have been able to identify the specimen within E. Hackel's personal herbarium, deposited at the Natural History Museum of Vienna. Among the senders, we identified 17 Italian scientists.

One of the publicly accessible outcomes of the investigation of Hackel's exchange with the 17 Italians is the online exhibition on the Europeana platform in an English^{*1} and Italian^{*2} version. A second result was the curated story of E. Hackel and his 17 Italian correspondents by the Transforming European Taxonomy through Training, Research and Innovations ([TETTRI](#)) project in the form of a curated website^{*3}, which links their biographical data from Wikipedia, Wikidata, and Bionomia, and visuals from Wikimedia. Furthermore, the letters are publicly available for consultation together with their transcription^{*4} via Trankribus^{*5} sites. This contribution will provide an insight into the possibilities of extracting data from natural history collections and interlinking them to implement their usability and accessibility for research institutions and the general public.

Keywords

transcription, crowdsourcing, citizen science, Eduard Hackel, digitisation, correspondence, supplementary material, botanists

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Presented at

Living Data 2025

Acknowledgements

Thanks to Katherine Thornton (Science Stories), Adrian Murphy (Europeana foundation) and Małgorzata Szyndkielewska (Europeana foundation) for the support in publishing the results of our work.

Funding program

This exhibition was supported by the TETTRIs project, which receives funding from the European Union's Horizon Europe Innovation Actions under grant agreement No. [101081903](https://doi.org/10.101081903).

Hosting institution

Natural History Museum of Vienna

Conflicts of interest

The authors have declared that no competing interests exist.

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URL: https://www.academia.edu/21122610/Primary_Source_Material_in_Science_The_Importance_of_Archival_Field_Notes

Endnotes

- *1 <https://www.europeana.eu/en/exhibitions/italian-botanists-and-their-correspondence-with-eduard-hackel>
- *2 <https://www.europeana.eu/it/exhibitions/italian-botanists-and-their-correspondence-with-eduard-hackel>
- *3 <https://tetris.sciencestories.io/collections/133/stories/Q2209907>
- *4 https://app.transkribus.org/en/sites/eduard-hackel-and-hisitalian-correspondents/search?searchType=fulltext&term=Hackel&f=1&mode=all_words&p=2&index
- *5 <https://app.transkribus.org/en/sites/eduard-hackel-and-hisitalian-correspondents/about>